

posterior arthrobranch of segment 12, was forked. The bifurcation began close above the base, the two branches being nearly equal to one another in size and having the usual structure.

Specimen III.—This specimen presented a partial fusion of the fourth and fifth abdominal segments. Looked at from the tergal side the abnormality could not be seen, but the calcified sternal bars were completely fused from the middle line nearly to the attachment of the appendage on the right side. On the left of the middle line the two sternal bars were separated by a narrow uncalcified portion, and a certain amount of movement between the two segments was still possible, owing to the elasticity of the narrow and partially fused sternal bars. The appendages were normal, but the distance between the attachments of those on segments 4 and 5, left and right, was naturally much less than usual, as the sternal region of these segments was so much reduced in length.

Cardiff,
Jan. 12, 1892.

The Chromatophores of Cephalopods.

By M. RAPHAEL BLANCHARD.

The radiating fibres which are found around the chromatophores of Cephalopods have been described by various authors as muscles which are inserted into the enveloping membrane: by contracting they would expand the chromatophore, on relaxing they would permit it to revert to its original condition and to efface itself more or less.

In the year 1882 I showed that, during the changes of form to which they are continually subject, the chromatophores alone are active. As a matter of fact attentive histological study enables me to state that the radiating fibres are neither muscles nor nerves, but simply fibres of connective tissue, presenting a peculiar orientation in the neighbourhood of the chromatophore, with which, however, they have no connexion. Soon afterwards a perfectly similar statement was made by M. Girod; this very year these observations have received further confirmation at the hands of M. Joubin*.

Nevertheless it has been recently stated by M. Phisalix† that “the radial fibres are muscles,” and he affirms that the expansive movements of the chromatophore “are determined by the contraction of muscles arranged radially at its equator.” He mentions elsewhere the writings of M. Girod, M. Joubin, and myself.

M. Phisalix cites, in support of his opinion, the researches of MM. Paul Bert and Frédéricq; but neither of them has verified anatomically the muscular nature of the radiating fibres; if they attribute this structure to them, it is solely because it was admitted by the naturalists of the period. The interesting experiments made by M. Phisalix, following upon those of the two observers mentioned above, are explained by the intimate union of the chromatophore with the nerves. *I expressly recognized* this union, and the result of my observations appears to me to remain unimpaired.—*Comptes Rendus*, tome cxiii. no. 17 (Oct. 26, 1891), pp. 565, 566.

* Ann. & Mag. Nat. Hist. 1891, viii. p. 111.

† *Ide infra*.